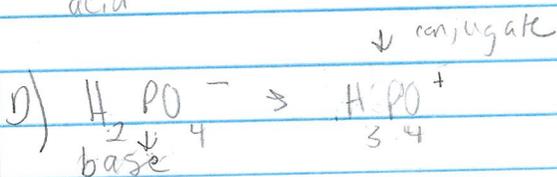
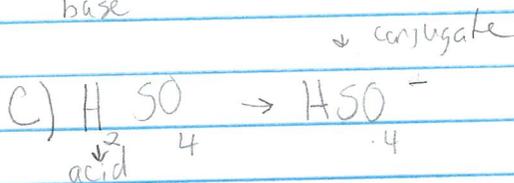
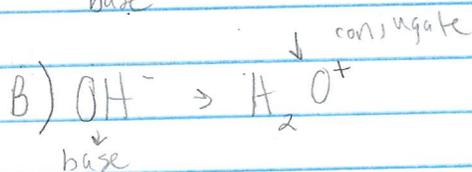
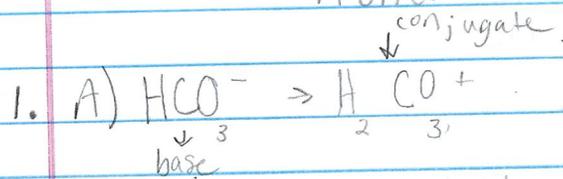
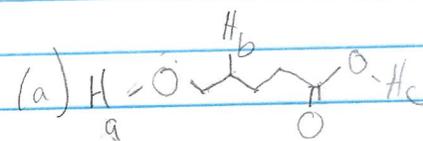
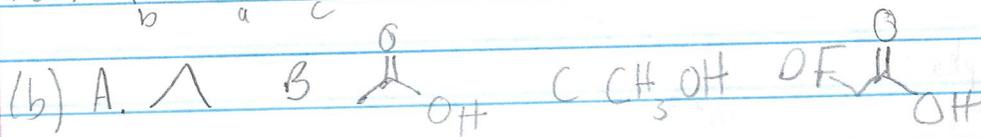


June Hollins
 Professor Qin
 Organic Chemistry
 24 August 2020
 Homework #3

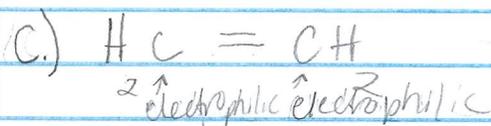
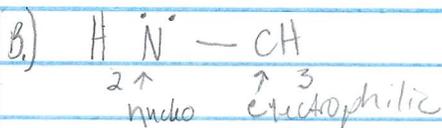
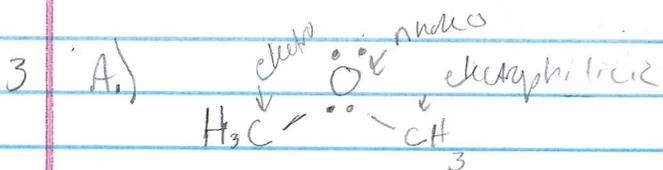


2. (a)  - H is less than H_a which is less than H_b because H_b is cancelled out and made the lowest because it's attached to C^a and the other 2 are attached to an O so it will be cancelled out from element effect. H_c is more acidic because you have to look at the entire small piece it's attached to. The O with the single bond and the O with a double bond, can be a resonance structure, H_c has a resonance structure while H_a does not. $\text{H}_b < \text{H}_c < \text{H}_a$.



A is the lowest because it has no electronegative elements, no resonance structures, and no inductiveness. C would be the next lowest because it has an electronegativity element, then come B because B has an

electronegative element and a resonance structure, and finally D has an electronegative element, a resonance structure, and inductiveness. So $A < C < B < D$.



4. $pK_a = -\log_{10} K_a$
 or $K_a = 10^{-pK_a}$

A.) $K_a = 3.0 \times 10^{-6}$
 $pK_a = 5.5$

B.) $K_a = 10^{-15}$
 $pK_a = -\log(10^{-15}) = 15$

C.) $pK_a = 8$
 $K_a = 10^{-8}$

D.) $pK_a = -3$
 $K_a = 10^{-(-3)} = 10^3$

